of the claims and abstract consecutively thereafter. The enclosed amended sequence listing should be inserted at the end of the application.

In the Claims:

Cancel claims 2, 15-29, and 33-47.

Amend claims 1, 3-7, 13, 14, and 30-32 as follows.

1. (Amended) A substantially [Substantially] pure nucleic acid encoding [an IAP] a mammalian inhibitor of apoptosis protein (IAP) polypeptide, wherein said inhibitor of apoptosis protein is a protein that modulates apoptosis and comprises a ring zinc finger (RZF) domain and at least one baculovirus inhibitor of apoptosis repeat (BIR) domain.

3. (Amended) The nucleic acid of claim [2] 1, wherein said polypeptide has at least two [BIR] baculovirus inhibitor of apoptosis repeat (BIR) domains.

4. (Amended) The nucleic acid of claim 3, wherein said polypeptide has at least three [BIR] baculovirus inhibitor of apoptosis repeat (BIR) domains.

5. (Amended) The nucleic acid of claim 1, wherein said [DNA] nucleic acid contains the [xiap] X-linked inhibitor of apoptosis protein (xiap) gene.

6. (Amended) The nucleic acid of claim 1, wherein said [DNA] nucleic acid contains the [hiap2] human inhibitor of apoptosis protein 2 (hiap2) gene.

7. (Amended) The nucleic acid of claim 1, wherein said [DNA] nucleic acid contains the [hiap1] human inhibitor of apoptosis protein 1 (hiap1) gene.

DNA.

13. (Amended) A [Substantially] substantially pure [DNA] nucleic acid having the sequence of Fig. 5 (SEQ ID NO: 39), or degenerate variants thereof, and encoding the amino acid sequence of Fig. 5 (SEQ ID NO: 40).

14. (Amended) A [Substantially] substantially pure [DNA] nucleic acid having the sequence of Fig. 6 (SEQ ID NO: 41), or degenerate variants thereof, and encoding the amino acid sequence of Fig. 6 (SEQ ID NO: 42).

30. (Amended) A method of producing [an IAP] a mammalian inhibitor of apoptosis protein (IAP) polypeptide comprising:

providing a cell transformed with [DNA] nucleic acid encoding [an] a mammalian IAP polypeptide positioned for expression in said cell, said polypeptide comprising a ring zinc finger (RZF) domain;

culturing said transformed cell under conditions for expressing said [DNA] nucleic acid; and

[isolating] producing said IAP polypeptide.

31. (Amended) The method of claim 30, wherein said mammalian inhibitor of apoptosis (IAP) [IAP] polypeptide is murine human inhibitor of apoptosis protein 1 (m-HIAP1) [HIAP1].

32. (Amended) The method of claim 30, wherein said mammalian inhibitor of apoptosis (IAP) [IAP] polypeptide is murine human inhibitor of apoptosis protein 2 (m-HIAP2) [HIAP2].

Add the following new claims 48-78.

--48. A substantially pure nucleic acid that hybridizes to a probe of at least 40 nucleotides in length, said probe derived from the nucleic acid sequence of Fig. 5 (SEQ ID NO: 39), wherein said nucleic acid hybridizes to said probe under low stringency conditions, said conditions comprising washing with 2X SSC at 40°C, and wherein said nucleic acid encodes a mammalian inhibitor of apoptosis protein (IAP) polypeptide, said polypeptide comprising a ring zinc finger (RZF) domain and at least one baculovirus

inhibitor of apoptosis repeat (BIR) domain.

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49. A substantially pure nucleic acid that hybridizes to a probe of at least 40 nucleotides in length, said probe derived from the nucleic acid sequence of Fig. 6 (SEQ ID NO: 41), wherein said nucleic acid hybridizes to said probe under low stringency conditions, said conditions comprising washing with 2X SSC at 40°C, and wherein said nucleic acid encodes a mammalian inhibitor of apoptosis protein (IAP) polypeptide, said polypeptide comprising a ring zinc finger (RZF) domain and at least one baculovirus inhibitor of apoptosis repeat (BIR) domain.

50. A substantially pure nucleic acid encoding a baculovirus inhibitor of apoptosis repeat (BIR) domain, said nucleic acid comprising a sequence selected from the group consisting of SEQ ID NO: 45, SEQ ID NO: 46, SEQ ID NO: 47, SEQ ID NO: 49, SEQ ID NO: 50, SEQ ID NO: 51, SEQ ID NO: 53, SEQ ID NO: 54, SEQ ID NO: 55, SEQ ID NO: 57, SEQ ID NO: 58, SEQ ID NO: 59, SEQ ID NO: 61, SEQ ID NO: 62, SEQ ID NO: 63, SEQ ID NO: 65, SEQ ID NO: 66, and SEQ ID NO: 67.

51. A substantially pure nucleic acid encoding a ring zinc finger (RZF) domain, said nucleic acid comprising a sequence selected from the group consisting of SEQ ID NO: 48, SEQ ID NO: 52, SEQ ID NO: 56, SEQ ID NO: 60, SEQ ID NO: 64, and SEQ ID

NO: 68.

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52. The nucleic acid of claim 1, wherein said nucleic acid encodes an X-linked inhibitor of apoptosis protein (XIAP).

53. The nucleic acid of claim 52, wherein said X-linked inhibitor of apoptosis protein (XIAP) is from a mouse.

54. The nucleic acid of claim 52, wherein said X-linked inhibitor of apoptosis protein (XIAP) is from a human.

55. The nucleic acid of claim 1, wherein said nucleic acid encodes a human inhibitor of apoptosis protein 1 (HIAP1).

56. The nucleic acid of claim 55, wherein said human inhibitor of apoptosis protein 1 (HIAP1) is from a mouse.

57. The nucleic acid of claim 55, wherein said human inhibitor of apoptosis protein 1 (HIAP1) is from a human.

58. The nucleic acid of claim 1, wherein said nucleic acid encodes a human inhibitor of apoptosis protein 2 (HIAP2).

59. The nucleic acid of claim 58, wherein said human inhibitor of apoptosis protein 2 (HIAP2) is from a mouse.

60. The nucleic acid of claim 58, wherein said human inhibitor of apoptosis protein 2 (HIAP2) is from a human.

61. The nucleic acid of claim 5, wherein said X-linked inhibitor of apoptosis protein (xiap) gene is from a mouse.

62. The nucleic acid of claim 5, wherein said X-linked inhibitor of apoptosis protein (xiap) gene is from a human.

63. The nucleic acid of claim 6, wherein said human inhibitor of apoptosis protein 2 (hiap2) gene is from a mouse.

64. The nucleic acid of claim 6, wherein said human inhibitor of apoptosis protein 2 (hiap2) gene is from a human.

65. The nucleic acid of claim 7, wherein said human inhibitor of apoptosis protein 1 (hiap1) gene is from a mouse.

66. The nucleic acid of claim 7, wherein said human inhibitor of apoptosis protein 1 (hiap1) gene is from a human.

67. A substantially pure nucleic acid having the sequence of Fig. 1 (SEQ ID NO: 3), or degenerate variants thereof, and encoding the amino acid sequence of Fig. 1 (SEQ ID NO: 4).

68. A substantially pure nucleic acid having the sequence of Fig. 2 (SEQ ID NO: 5), or degenerate variants thereof, and encoding the amino acid sequence of Fig. 2 (SEQ ID NO: 6).

69. A substantially pure nucleic acid having the sequence of Fig. 3 (SEQ ID NO: 7), or degenerate variants thereof, and encoding the amino acid sequence of Fig. 3 (SEQ ID NO: 8).

70. A substantially pure nucleic acid having the sequence of Fig. 4 (SEQ ID NO: 9), or degenerate variants thereof, and encoding the amino acid sequence of Fig. 4 (SEQ

ID NO: 10).

71. The method of claim 30, wherein said mammalian inhibitor of apoptosis protein (IAP) polypeptide is human inhibitor of apoptosis protein 1 (HIAP1).

72. The method of claim 30, wherein said mammalian inhibitor of apoptosis protein (IAP) polypeptide is human inhibitor of apoptosis protein 2 (HIAP2).

73. The method of claim 30, wherein said mammalian inhibitor of apoptosis protein (IAP) polypeptide is murine X-linked inhibitor of apoptosis protein (m-XIAP).

74. The method of claim 30, wherein said mammalian inhibitor of apoptosis protein (IAP) polypeptide is human X-linked inhibitor of apoptosis protein (XIAP).

75. A substantially pure nucleic acid that hybridizes to a probe of at least 40 nucleotides in length, said probe derived from the DNA sequence of Fig. 1 (SEQ ID NO: 3), wherein said nucleic acid hybridizes to said probe under low stringency conditions, said conditions comprising washing with 2X SSC at 40°C, and wherein said nucleic acid encodes a mammalian inhibitor of apoptosis protein (IAP) polypeptide, said polypeptide comprising a ring zinc finger (RZF) domain and at least one baculovirus inhibitor of

apoptosis repeat (BIR) domain.

76. A substantially pure nucleic acid that hybridizes to a probe of at least 40 nucleotides in length, said probe derived from the DNA sequence of Fig. 2 (SEQ ID NO: 5), wherein said nucleic acid hybridizes to said probe under low stringency conditions, said conditions comprising washing with 2X SSC at 40°C, and wherein said nucleic acid encodes a mammalian inhibitor of apoptosis protein (IAP) polypeptide, said polypeptide comprising a ring zinc finger (RZF) domain and at least one baculovirus inhibitor of apoptosis repeat (BIR) domain.

77. A substantially pure nucleic acid that hybridizes to a probe of at least 40 nucleotides in length, said probe derived from the DNA sequence of Fig. 3 (SEQ ID NO: 7), wherein said nucleic acid hybridizes to said probe under low stringency conditions, said conditions comprising washing with 2X SSC at 40°C, and wherein said nucleic acid encodes a mammalian inhibitor of apoptosis protein (IAP) polypeptide, said polypeptide comprising a ring zinc finger (RZF) domain and at least one baculovirus inhibitor of apoptosis repeat (BIR) domain.

78. A substantially pure nucleic acid that hybridizes to a probe of at least 40 nucleotides in length, said probe derived from the DNA sequence of Fig. 4 (SEQ ID NO: 9), wherein said nucleic acid hybridizes to said probe under low stringency conditions,